



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

cr

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/787,332 | 02/26/2004 | Jan L. de Jong | X-1010-2D US | 3967 |
| 24309 | 7590 | 06/29/2004 | EXAMINER | |
| XILINX, INC ATTN: LEGAL DEPARTMENT 2100 LOGIC DR SAN JOSE, CA 95124 | | | NGUYEN, VINCENT Q | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2858 | |

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/787,332

Applicant(s)

DE JONG ET AL.

Examiner

Vincent Q Nguyen

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/26/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

2. The abstract of the disclosure is objected to because it should include a method of testing reliability in an integrated circuit, which is new in the art to which the invention pertains. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chao et al. (6,503,765).

Regarding claims 1, 2, 10-12, Chao et al. discloses a method of testing reliability in an integrated circuit (IC) including an array of test circuits (156-159) (Figure 3), each test circuit including a resistor (Circuit 156 including resistor 161), the method comprising selecting a first test circuit from the array of test circuits (Steps 262, 264) (figure 6), the first test circuit (156) comprising a first current path (Current flows from 172 to 182 to 161 and to 176) (Figure 3) traversing a first resistor (161) in the first test circuit (156); measuring, after selecting the first test circuit, a first pre-stress resistance value for the first resistor (Step 268); applying, after measuring the first pre-stress resistance value, a first high stress current through the first current path (Column 6, lines 7-9).

Chao et al. does not explicitly disclose the step of removing the first high stress current from the first current path; and measuring, after removing the first high stress current, a first post-stress resistance value for the first resistor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the step of removing the first high stress current from the first current path and measuring the resistance into the system of Chao et al. because Chao et al. taught that "the connection between the test circuits and the parametric tester can be appropriate modified" to enhance the accuracy (Column 2, lines 24-27; column 5, lines 27-36).

Regarding claim 3, Chao et al. discloses de-selecting the first test circuit (156); selecting a second test circuit (157) from the array of test circuits (156-159), the second test circuit (157) comprising a second current path (Current flows from 172 to 182, to 162 and to 176) traversing a second resistor (162) in the second test circuit (157); measuring, after selecting the second test circuit (157), a second pre-stress resistance value for the second resistor (Step 268); de-selecting the second test circuit; and re-selecting the first test circuit (Column 6, lines 5-10).

Regarding claim 4, Chao et al. discloses the step of de-selecting the first test circuit (156), measuring the second pre-stress resistance value (Step 268), de-selecting the second test circuit (157), and re-selecting the first test circuit occur after measuring the first pre-stress resistance value and before applying the first high stress current (Column 6, lines 8-10).

Regarding claim 5, Chao et al. discloses steps of de-selecting the first test circuit (156); re-selecting the second test circuit (157); applying a second high stress current through the second current path (Step 276); removing the second high stress current from the second current path (When probe (step 276) is moved, current is removed); de-selecting the second test circuit (157); and re-selecting the first test circuit (column 6, lines 6-10).

Regarding claims 6-8, Chao et al. discloses the step of de-selecting, re-selecting, applying the second high stress current, removing the second high stress current, de-selecting the second test circuit, and re-selecting the first test circuit occur after removing the first high stress current from the first current path (Step 276) and before measuring the first post-stress resistance value for the first resistor (Figure 6).

Regarding claim 9, pertinence to the discussion of claims 1-8 above, Chao et al. disclose (Figure 2) selecting a first row and a first column from the array.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q Nguyen whose telephone number is (571) 272-2234. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



June 25, 2004

Vincent Q Nguyen
Patent Examiner
Art Unit 2858